

SUPPORT FOR THE AMENDMENTS

The amendment to Claim 8 is supported by the specification at page 22, lines 19-34. Accordingly, no new matter is believed to have been added to the present application by the amendments submitted above.

REMARKS

Claims 8-14 are pending. Favorable reconsideration is respectfully requested.

The present invention relates a process for the preparation of alkylarylsulfonates by, inter alia:

- a) reaction of a C₄-olefin mixture over a metathesis catalyst to prepare an olefin mixture comprising 2-pentene and/or 3-hexene, and optional removal of 2-pentene and/or 3-hexene, and
- b) dimerization of the 2-pentene and/or 3-hexene obtained in stage a) in the presence of a dimerization catalyst to give a mixture comprising C₁₀₋₁₂-olefins, removal of the C₁₀₋₁₂-olefins and removal of 5 to 30% by weight, based on the C₁₀₋₁₂-olefins removed, of low-boiling constituents of the C₁₀₋₁₂-olefins, *such that at least 90% of di- or poly-branched olefins are separated off.* See Claim 8.

The rejection of the claims under 35 U.S.C. §103(a) over Maas et al. is respectfully traversed. The reference fails to suggest the claimed process.

Maas et al. disclose a process for the preparation of alkylaryl sulfonates. Steps a)-e) of the claimed process correspond to steps a)-e) described in the reference.

Maas et al. disclose a process, where, in step b), a mixture of 2-pentene and/or 3-hexene is dimerized over a dimerization catalyst to give a mixture containing C₁₀₋₁₂-olefins. See the Abstract. Detailed information in respect of stage b) of the process described in Maas et al. can be found in paragraphs 0129-0142. In paragraph 0139 it is disclosed that the very characteristic feature of the olefin mixtures prepared according to Maas et al. in step b) is the high proportion, *generally greater than 75%*, of components with branches, and the lower proportion, generally below 25% of unbranched olefins.

Maas et al. teach a person having ordinary skill in the art that a C₁₀₋₁₂-olefin mixture should be obtained having components with branches in an amount of generally greater than 75%, and having a low proportion of unbranched olefins of generally below 25%. The olefins that are suggested in Maas et al. sometimes have a too high or too low degree of branching for the alkylation, or produce a non-optimum ratio of terminal to internal phenylalkanes. The process described by Maas et al. does not lead in all cases to products which exhibit a desired spectrum of properties, see page 3, first paragraph of the description. Only the specific separation of low boiling components of C₁₀₋₁₂-olefin from the mixture obtained after dimerization in step b) of the process according to amended Claim 8 of the present application gives rise to an olefin mixture from which at least 90% of the di- or poly-branched olefins are separated off. This provides a mixture having the very specific properties that enables the mixture to be a very advantageous substrate mixture for the production of alkylaryl sulfonates, which can be used in detergents or cleaner compositions.

In contrast, step b) of the claimed process explicitly provides a C₁₀₋₁₂-olefin mixture in which at least 90% of the di- or poly-branched olefins are separated off. Maas et al. fail to disclose or even such that feature.

Maas et al. does not point in the direction that after dimerization a separation of low boiling components should be conducted, in order that at least 90% of the di- or poly-branched olefins are separated off. The only suggestion that is made in Maas et al. is that a high proportion, generally greater than 75%, of components with branches, and a low proportion generally below 25% of unbranched olefins should be present. This does not point in the direction of the specific mixture according to the process of amended Claim 8.

As a result of the difference between the process according to Maas et al. and claimed process, the C₁₀₋₁₂-olefin mixture at the end of stage b) of the claimed process will contain linear and singly branched olefins, but does not comprise high amounts of di- or poly-branched olefins. The result of the specific removal after the dimerization in step b) in the process according to amended Claim 8 of the present application is shown by Example 5 at page 32 of the specification. In this example, 3-hexene is reacted in the presence of triethylaluminum as a dimerisation catalyst. The resulting product mixture, shows a molar ratio of dimer to trimer of 58, showing that the dimer being a C₁₀₋₁₂-olefin is present in a very high proportion. The degree of branching of this C₁₀₋₁₂-olefin is 1,03, the proportion of doubly and triply branched isomers is only 2%. The degree of branching of 1,03 significantly shows that linear and singly branched olefins are present in majority. Doubly and triply branched isomers are only present in an amount of 2%.

Example 5 according to the present application is significant because it shows that the separation of C₁₀₋₁₂-olefin and removal of 5-30% by weight, based on the C₁₀₋₁₂-olefin removed of low boiling constituents of the C₁₀₋₁₂-olefin makes it possible to obtain a C₁₀₋₁₂-olefin mixture after dimerisation comprising only linear and singly branched molecules.

In view of the foregoing, Maas et al. fail to suggest the claimed process. In addition, the claimed process provides distinct advantages that are not suggested by the reference. Accordingly, the claimed process is not obvious over Maas et al. Therefore, withdrawal of this ground of rejection is respectfully requested.

Applicants submit that the present application is in condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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